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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/805,982

03/22/2004

Michael D. Briscoe

37,488-00

1473

7590

06/15/2006

BP America Inc.

Docket Clerk, BP Legal, M.C. 5East

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EXAMINER

DOERRLER, WILLIAM CHARLES

ART UNIT

PAPER NUMBER

3744

DATE MAILED: 06/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/805,982

Applicant(s)

BRISCOE ET AL.

Examiner

William C. Doerrler

Art Unit

3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15, 21-38 and 42-44 is/are rejected.
- 7) ☒ Claim(s) 16-20, 39-41, 45 and 46 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12-28-2004</u> . | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

The Kick Othmer Encyclopedia citation from the IDS was not considered because it cannot be found in the file. It will be considered if applicant submits a new copy.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Both claims claim a ratio, without defining what the ratio is between. It is noted that GTL should be defined at least once in both the claims and the specification. It is possible that GTL mean something other than gas to liquid. The limitations which are preceded by "optionally", such as in claim 16, are seen as not necessary for patentability.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-4 and 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the '140 UK patent from the IDS in view of DeGraaf et al (2004/0242707).

The '140 UK patent discloses applicants' basic inventive concept, an integrated process for forming LNG and methanol from a natural gas stream with the methanol being formed with a steam reformer, substantially as claimed with the exception of using a carbon dioxide stream removed from the feed in the steam reformer. DeGraaf et al show this feature to be old in the natural gas conversion art in paragraph 11. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention from the teaching of DeGraaf et al to modify the natural gas processing method of the '140 UK patent by using the removed carbon dioxide in the reformation process to improve the efficiency of the system by utilizing all usable constituents on site to improve the synergy of the integration. In regard to claim 3, the bottom of page 1 and the top of page 2 of the UK patent state that the feed is 80-85% methane. In regard to claim 4, the remaining carbon dioxide content is seen as a matter of obvious design choice to an

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ordinary practitioner in the art since 100% removal is known, and the percentage is generally a product of cost of removal and intended use of the product. In regard to claims 14 and 15, the UK patent pretreats all of the feed to remove impurities, such as carbon dioxide.

Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over the '140 UK patent in view of DeGraaf et al as applied to claims 1-4 and 10-15 above, and further in view of Weedon et al.

The UK patent, as modified discloses applicant's basic inventive concept, an integrated LNG/methanol plant with a steam reformer, substantially as claimed with the exception of specifying the conditions in the steam reformer. Weedon et al in column 7 lines 50-56 show applicants' claimed conditions to be known in the steam reformer art (20 bar=290psi). It would have been obvious to one of ordinary skill in the art at the time of applicants' invention from the teaching of Weedon et al to modify the process of the '140 UK patent by running the steam reformer with a nickel catalyst so that the products leave at over 500 degrees F and at 290 psi to ensure effective reactions to maximize the synthesis gas derived from the reformer.

Claims 21-38 and 42-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over the '140 UK patent in view of DeGraaf et al as applied to claims 1-4 and 10-15 above, and further in view of Bingham et al (6105390).

The UK patent, as modified, discloses applicant's basic inventive concept, an integrated LNG/methanol plant with carbon dioxide recycling in the process, substantially as claimed with the exception of liquefying the natural gas by a series of

expanding the gas through Joule-Thompson valves and separating the expanded gas. Bingham et al shows this feature to be old in the natural gas liquefying art. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention from the teaching of Bingham et al to modify the liquefying system of the UK patent by using a series of separations and expansions through J-T valves to provide liquid using energy which is already contained in the gas (in the form of pressure). In regard to claims 24,25,28,29,31,36 and 37, the pressure drop and respective temperature at the respective stages is seen as well within the scope of the ordinary designer to derive a system which will efficiently produce LNG weighing such factors as capital costs, space and energy costs, and as such is seen as obvious. In regard to claim 30, due to the disclosed separation in the references, the remaining liquid will inherently have less nitrogen and more higher hydrocarbons as the different boiling points will vaporize more nitrogen and less ethane.

#### ***Allowable Subject Matter***

Claims 16-20,39-41,45 and 46 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

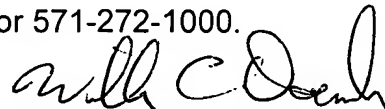
#### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Low et al show a separation and expansion method for liquefying natural gas. Early et al show a steam reformer with a nickel catalyst. Any inquiry concerning this communication or earlier communications from the examiner should be

directed to William C. Doerrler whose telephone number is (571) 272-4807. The examiner can normally be reached on Monday-Friday 6:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



William C Doerrler  
Primary Examiner  
Art Unit 3744

WCD